AMENDMENTS TO THE SPECIFICATION

In the specification at page 1, line 4, please delete the following:

Description

In the specification at page 1, after the title, please insert the following new paragraph and heading:

RELATED APPLICATIONS

This application is a national stage application (under 35 U.S.C. 371) of PCT/EP2003/009102 filed August 18, 2003, which claims the benefit of German application 102 38 980.2 filed August 20, 2002, German application 102 38 978.0 filed August 20, 2002, Germany application 102 38 979.9 filed August 20, 2002, German application 102 53 112.9 filed November 13, 2002, and Germany application 102 58 971.2 filed December 16, 2002.

FIELD OF THE INVENTION

In the specification at page 1, line 11, please insert the following heading:

BACKGROUND OF THE INVENTION

In the specification at page 2, line 8, please insert the following heading:

BRIEF SUMMARY OF THE INVENTION

In the specification at page 2, after line 20 and before line 22, please insert the following new paragraphs and headings:

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows the biosynthetic scheme of carotenoids in tomato flowers.

Figure 2 shows the biosynthetic scheme of Astaxanthin in genetically modified flowers.

Figure 3 shows a nucleotide sequence alignment between KETO2 (SEQ ID NO: 22) and X86782 (SEQ ID NO: 1).

Figure 4 shows a protein sequence alignment between KETO2 (SEQ ID NO: 23) and X86782 (SEQ ID NO: 2).

Figure 5 shows constructs for overexpressing the ketolase (β-C-4-oxygenase) protein from *H. pluvialis* with rbcS transit peptide from pea under the control of the d35S-promoter; 5A: a tomato transformation construct; and 5B: a *Tagetes* transformation construct.

Figure 6 shows a construct for overexpressing the N-terminally truncated ketolase (β-C-4-oxygenase) protein from *H. pluvialis* with rbcS transit peptide from pea under the control of the d35S promoter.

Figure 7 shows a construct for overexpressing the ketolase (β-C-4-oxy- genase) protein from *H. pluvialis* with rbcS transit peptide from pea and C-terminal myc tag under the control of the d35S promoter.

Figure 8 shows constructs pS3AP3PKETO2 for overexpressing the ketolase (β-C-4-oxygenase) proteins from *H. pluvialis* with rbcS transit peptide from pea under the control of the AP3P promoter; 8A: a tomato transformation construct; and 8B: a *Tagetes* transformation construct.

Figure 9 shows a construct for overexpressing the ketolase (β-C-4-oxy-genase) protein from *H. pluvialis* with rbcS transit peptide from pea and C-terminal myc tag under the control of the AP3P promoter.

Figure 9A shows ester separation by means of thin-layer chromatogram.

Figure 10 represents HPLC analysis of mono- and diesters of the carotenoids.

Figure 11 represents HPLC analysis of mono- and diesters of the carotenoids indicating astaxanthin and adonixanthin concentrations.

Figure 12 shows a cloning cassette for the preparation of inverted-repeat expression cassettes for the flower-specific expression of epsilon-cyclase dsRNAs in *Tagetes erecta*.

Figure 13 depicts an expression vector for the flower-specific production of dsRNA transcripts comprising 5'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the AP3P promoter.

Figure 14 depicts an expression vector for the flower-specific production of dsRNA transcripts comprising 5'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the CHRC promoter.

Figure 15 depicts an expression vector for the flower-specific production of dsRNA transcripts comprising 3'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the AP3P promoter.

Figure 16 depicts an inverse PCR amplificate comprising the 312 bp fragment of the epsilon-cyclase promoter.

Figure 17 depicts a TAIL PCR amplificate comprising the 199 bp fragment of the epsilon-cyclase promoter.

Figure 18 depicts an expression vector for the flower-specific production of dsRNA transcripts comprising the 312 bp promoter fragment of the epsilon-cyclase under the control of the AP3P promoter.

Figure 19 depicts an expression vector for the flower-specific production of dsRNA transcripts comprising the 312 bp promoter fragment of the epsilon-cyclase under the control of the CHRC promoter.

Figure 20 depicts an expression vector for the flower-specific production of dsRNA transcripts comprising the 312 bp promoter fragment of the epsilon-cyclase under the control of the AP3P promoter and of the CHRC promoter.

Figure 21 shows a construct for the flower-specific overexpression of the ketolase (β-C-4-oxygenase) protein from *H. pluvialis* without heterologous transit peptide.

Figure 22 shows a pSUN3 construct for overexpressing the β-C-4-oxygenase protein NP196 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the FNR promoter.

Figure 23 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein NP196 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the FNR promoter.

Figure 24 shows a pSUN3 construct for overexpressing the β-C-4-oxygenase protein NP196 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the EPSPS promoter.

Figure 25 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein NP196 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the EPSPS promoter.

Figure 26 shows a pSUN3 construct for overexpressing the β-C-4-oxygenase protein NP195 from *Nostoc punctiforme* ATCC 29133 with rbsS transit peptide from pea under the control of the FNR promoter.

Figure 27 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein NP195 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the FNR promoter.

Figure 28 shows a pSUN3 construct for overexpressing the β-C-4-oxygenase protein NP195 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the EPSPS promoter.

Figure 29 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein NP195 from *Nostoc punctiforme* ATCC 29133 with rbcS transit peptide from pea under the control of the EPSPS promoter.

Figure 30 shows a pSUN3 construct for overexpressing the β-C-4-oxygenase protein from *Nodularia spumigena* NSOR10 with rbcS transit peptide from pea under the control of the FNR promoter.

Figure 31 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein from *Nodularia spumigena* NSOR10 with rbcS transit peptide from pea under the control of the FNR promoter.

Figure 32 shows a pSUN3 construct for overexpressing the β-C-4-oxygenase protein from *Nodularia spumigena NSOR10* with rbcS transit peptide from pea under the control of the EPSPS promoter.

Figure 33 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein from *Nodularia spumigena* NSOR10 with rbcS transit peptide from pea under the control of the EPSPS promoter.

Figure 34 shows a pSUN5 construct for overexpressing the β-C-4-oxygenase protein from *Nodularia spumigena* NSOR10 and downregulating the endogenous *Tagetes* epsilon-cyclase in *Tagetes erecta*.

Figure 35 depicts an expression cassette for overexpressing the β-hydroxylase from tomato under the control of the EPSPS promoter.

Figure 36 depicts an expression cassette for downregulating the endogenous β-hydroxylase from *Tagetes* under the control of the EPSPS promoter.

Figure 37 shows a pSUN5 construct for downregulating the endogenous *Tagetes* epsilon-cyclase and overexpressing the NP196 ketolase and the tomato β-hydroxylase

Figure 38 shows a pSUN5 construct for downregulating the endogenous *Tagetes* epsilon-cyclase, overexpressing the endogenous *Tagetes* β-hydroxylase and overexpressing the NP196 ketolase and the tomato β-hydroxylase.

Figure 39 shows a pSUN5 construct for downregulating the endogenous *Tagetes* epsilon-cyclase, downregulating the endogenous *Tagetes* β-hydroxylase and overexpressing the NP196 ketolase and the tomato β-hydroxylase and the B gene from tomato.

Figure 40 shows a pSUN5 construct for overexpressing the NP196 ketolase and the tomato β-hydroxylase.

Figure 41 shows a pSUN5 construct for downregulating the endogenous *Tagetes* β-hydroxylase and downregulating the NP196 ketolase and the tomato β-hydroxylase.

Figure 42 shows a pSUN5 construct for downregulating the endogenous *Tagetes* β-hydroxylase and for overexpressing the NP196 ketolase, the B gene and the tomato β-hydroxylase.

Figure 43 depicts an expression vector for the flower-specific expression of the chromoplast-specific lycopene beta-cyclase from *Lycopersicon esculentum* under the control of

the promoter P76 and for the flower-specific expression of the ketolase NP196 from *Nostoc punctiforme* ATCC 29133 under the control of the EPSPS promoter.

Figure 44 depicts an expression vector for the flower-specific expression of the chromoplast-specific lycopene beta-cyclase from *Lycopersicon esculentum* under the control of the promoter P76, for the flower-specific expression of the ketolase NP196 from *Nostoc punctiforme* ATCC 29133 under the control of the EPSPS promoter and for the flower-specific production of dsRNA transcripts comprising 5'-terminal fragments of the epsilon-cyclase cDNA (AF251016) under the control of the AP3P promoter.

DETAILED DESCRIPTION OF THE INVENTION